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Quality Engineering Test Report

SERIES: S-320 320W AC-DC SINGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A.S-320-5 5V / 50A D.S-320-13.5 13.5V / 22A G.S-320-27 27V / 11A
B.S-320-7.5 7.5V / 36A E.S-320-15 15V / 20A H.S-320-48 48V / 6.5A
C.S-320-12 12V / 25A F.S-320-24 24V / 12.5A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:176~264VAC O/P:FULL LOAD	B:150VAC~267VAC	P
2	LINE REGULATION	I/P:176~264VAC SPEC: O/P:FULL LOAD A: ±0.5% B: ±0.5% C: ±0.5% D: ±0.5% E: ±0.5% F: ±0.5% G: ±0.5% H: ±0.5% ±0.5%	A: -0.12% ~ +0.00% B: +0.00% ~ +0.08% C: +0.00% ~ +0.05% D: -0.04% ~ +0.00% E: -0.04% ~ +0.00% F: -0.02% ~ +0.05% G: -0.07% ~ +0.09% H: -0.21% ~ +0.25%	P
3	LOAD REGULATION	I/P:230VAC SPEC: O/P:MIN. TO FULL LOAD A: ±1% B: ±1% C: ±0.5% D: ±0.5% E: ±0.5% F: ±0.5% G: ±0.5% H: ±0.5% ±0.5%	A: -0.36% ~ +0.36% B: -0.33% ~ +0.41% C: -0.15% ~ +0.1% D: -0.09% ~ +0.04% E: -0.08% ~ +0.08% F: -0.13% ~ +0.07% G: -0.18% ~ +0.16% H: -0.31% ~ +0.34%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:180~264VAC SPEC: O/P:0% TO FULL LOAD A: ±2% B: ±2% C: ±1% D: ±1% E: ±1% F: ±1% G: ±1% H: ±1% ±1%	A: +0.62% ~ +1.50% B: -0.75% ~ +0.09% C: -0.26% ~ +0.00% D: -0.19% ~ +0.00% E: -0.17% ~ +0.08% F: -0.26% ~ +0.00% G: -0.44% ~ +0.00% H: -0.86% ~ +0.04%	P
5	RIPPLE&NOISE	I/P:230VAC SPEC: O/P:FULL LOAD A: 150mV B: 150mV C: 150mV D: 150mV E: 150mV F: 150mV G: 200mV H: 240mV	A: 92mV B: 65mV C: 92mV D: 83mV E: 77mV F: 43mV G: 42mV H: 49mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC:3.5A O/P:FULL LOAD	B:2.9A	P
7	MAX. INRUSH CURREN	I/P:230VAC SPEC:40A O/P: FULL LOAD	B:28A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: A: 4.5~5.7V O/P:MIN. LOAD B: 6~9V C: 10~13.2V D: 12~15V E: 13.5~18V F: 20~26.4V G: 26~32V H: 41~56V	A: 4.33V~6.23V B: 5.56V~9.77V C: 9.02V~13.53V D: 11.27V~16.27V E: 12.32V~19.00V F: 17.52V~27.20V G: 24.73V~35.89V H: 38.48V~60.85V	P
9	SET UP TIME	I/P:230VAC SPEC:2000mS O/P:FULL LOAD	B: 1187mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	B: 31.4mS	P
11	EFFICIENCY	I/P:230VAC SPEC: A:77% O/P:FULL LOAD B:80% C:82% D:83% E:84% F:86% G:86% H:87%	A:79.63% B:80.83% C:83.76% D:84.42% E:84.82% F:87.52% G:87.70% H:88.10%	P

NEXT

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>12</td><td>OVER LOAD PROTECTION</td><td>I/P:230VAC
O/P:TESTING
SPEC: 105%~135%</td><td>A:125%
B:126%
C:116%
D:119%
E:122%
F:122%
G:118.5%
H:119%</td><td>P</td></tr>
<tr><td>13</td><td>OVER VOLTAGE PROTECTION</td><td>I/P:230VAC
O/P:TESTING
SPEC: A:5.75V~6.75V
B:9.4V~10.9V
C:13.8V~16.2V
D:15.5V~18.2V
E:18V~21V
F:27.6V~32.4V
G:33.7V~39.2V
H:57.6V~67.2V</td><td>A:6.45V
B:9.87V
C:14.55V
D:17.55V
E:19.51V
F:28.82V
G:37.01V
H:60.86V</td><td>P</td></tr>
<tr><td>14</td><td>OVER TEMPERATURE PROTECTION & FAN ON/OFF TEST</td><td>I/P:230VAC
O/P:FULL LOAD
SPEC:
RTH1: (5V~15V)
OTP > = 70°C
FAN ON > = 65°C
FAN OFF < = 55°C
RTH1: (24V~48V)
OTP > = 80°C
FAN ON > = 70°C
FAN OFF < = 65°C</td><td>B:
OTP : 72°C
FAN ON : 59°C
FAN OFF: 44.5°C</td><td>P</td></tr>
<tr><td>15</td><td>GROUND LEAKAGE CURRENT</td><td>I/P:240VAC
SPEC: L-FG--<3.5mA
N-FG--<3.5mA</td><td>B: L-FG:2.17mA
N-FG:2.12mA</td><td>P</td></tr>
<tr><td>16</td><td>GRUNDING CONTINUITY</td><td>SPEC: FG--CHASSIS<0.1 Ohms/2min</td><td>C: 2m Ohms</td><td>P</td></tr>
<tr><td>17</td><td>INSULATION RESISTANCE</td><td>SPEC: I/P-O/P: 500VDC/100M Ohms MIN.
I/P-FG: 500VDC/100M Ohms MIN.
O/P-FG: 500VDC/100M Ohms MIN.</td><td>B: O/P-FG >100M Ohms
I/P-O/P >100M Ohms
I/P-FG >100M Ohms</td><td>P</td></tr>
<tr><td>18</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>SPEC: I/P- O/P: 4.3KVDC/ 1 min. (10mA CUT-OFF)
I/P - FG: 2.2KVDC/ 1 min. (10mA CUT-OFF)
O/P -FG: 0.75KVDC/ 1 min. (10mA CUT-OFF)</td><td>B: I/P-O/P :0.002mA
I/P-FG :0.002mA
O/P-FG :0.002mA</td><td>P</td></tr>
<tr><td>19</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P: FULL LOAD
TA:25.5°C BURN-IN DURATION : 3 hrs</td><td>B:NON BREAK</td><td>P</td></tr>
<tr><td>20</td><td>ENVIRONMENT TEST (SAMPLE B:)</td><td>HIGH AMBIENT TEMPERATURE FULL LOAD TEST
I/P:230VAC O/P:FULL LOAD
AMBIENT TEMPERATURE:40.8°C</td><td>AFTER 17.5 hrs
NON BREAK</td><td>P</td></tr>
<tr><td>21</td><td>TEMPERATURE RISE TESTT rise OF PARTS</td><td>B: I/P :230VAC AFTER 3 hr BURN-IN
O/P :FULL LOAD TA:25.5°C
<table>
<tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td>BD1</td><td>BRIDGE DIODE</td><td>57.1°C</td><td>31.6°C</td></tr>
<tr><td>Q1</td><td>MAIN TRANSISTOR</td><td>46.4°C</td><td>20.9°C</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER WIRE</td><td>56.4°C</td><td>30.9°C</td></tr>
<tr><td>D12</td><td>O/P DIODE</td><td>58.8°C</td><td>33.3°C</td></tr>
<tr><td>C33</td><td>O/P FILTER CAPACITOR</td><td>44°C</td><td>18.5°C</td></tr>
<tr><td>L1</td><td>O/P CHOCK</td><td>55.4°C</td><td>29.9°C</td></tr>
<tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>39.5°C</td><td>14°C</td></tr>
<tr><td>RTH1</td><td>THERMISTOR</td><td>44.8°C</td><td>19.3°C</td></tr>
<tr><td>TRC1</td><td>TRAIC</td><td>54°C</td><td>28.5°C</td></tr>
<tr><td>RG1</td><td>REGULATOR</td><td>44.3°C</td><td>18.8°C</td></tr>
</table></td><td>P</td></tr>
<tr><td>22</td><td>LIFE CYCLE</td><td>B: SUPPOSE C33 IS THE MOST CRITICAL COMPONENT
I/P:230VAC O/P:FULL LOAD Ta:25°C Tc33:43.5°C Life: 403920hrs
I/P:230VAC O/P:FULL LOAD Ta:40°C Tc33:49.1°C Life: 273980hrs</td><td>P</td></tr>
<tr><td>23</td><td>CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)</td><td colspan="2">B: FUSE : 8A/250V
BRIDGE DIODE : D10XB60
LINE FILTER : TF-284 EE-40
TRANSFOMER : TF-391 ETD-39
POWER SWITCHER : 2SK727 TO-3P
OUTPUT DIODE : C25PD6Q
OUTPUT CAPACITOR : ELNA 2200uF/16V 105°C RJH
INPUT CAPACITOR : HITACHI 680uF/200V 85°C HP3
P.C.B : S-320N-R3 FR-4 2 OZ SS</td></tr>
</table>

PREVIOUS NEXT

DATE	SAMPLE	TEST RESULT	TEST	APPROVAL
19980511	S-320	PASS	H.C.LIOU	MAX LIN
19990707	PRDUCTION 9907A03A S-320-5	PASS	H.C.LIOU	MAX LIN

PREVIOUS